

**Notice of Allowability**

Application No.

10/019,852

Examiner

Marianne L. Padgett

Applicant(s)

MORI ET AL.

Art Unit

1762

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/28/2006 & 8/29/2006.
2. ☒ The allowed claim(s) is/are 4,5,8-11 and 20-23.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All   b) ☐ Some\*   c) ☐ None   of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 8/29/2006
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other PTO-324.

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1. The amendment of 8/28/2006 is not entered, because it is noncompliant, however a copy of applicant's amendment has been modified to and then attached as the examiner's amendment in the appendix.
2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

In the claims, see Appendix for compliant copy of claims amendment proposed 8/28/2006.

3. The following is an examiner's statement of reasons for allowance: a proposed/corrected amendment of 8/28/2006 removes the outstanding rejections of the action mailed 6/2/2006 by cancellation of claims 30-33.

The English abstract of the Japanese reference cited in the IDS of 8/29/2006, while showing a multipart electrode conform to a bottle, where the interior is coated with carbon film, differs from the present invention in ways similar to the previously of applied prior art, specifically that the electrode covering the bottom of the bottle, i.e. 12B cover electrode, is not electrically insulated from the body and shoulder portions, i.e. is electrically connected directly, with it noted that insulation plate 11, which separates the grounded portion of the apparatus electrically connected to the internal gas supply, is separated from the shoulder portions in different from the configuration claimed.

Other art of interest include three references to Hama et al. (7029752 B2; 2005/0266191 A1; & 2005/0155553 A1), where the first to have the closest disclosure is directly applying RF power to the electrically joint bottom and body electrode segments, with the shoulder portions separated from the body

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portion by an insulator, however none of these three references are prior art, nor are the claims therein closely related to the present claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

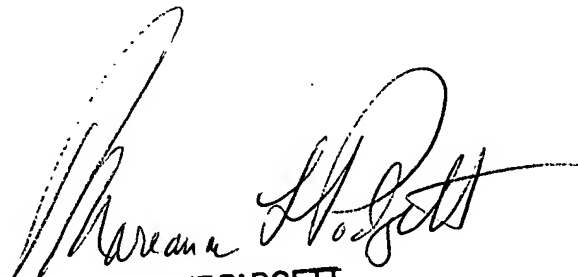
4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

9/15/2006



MARIANNE PADGETT  
PRIMARY EXAMINER

*Appendix*RECEIVED  
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AUG 29 2006

1326-007

IN THE CLAIMS

Please amend the claims of the present application under the provisions of 37 C.F.R. §1.121(c), as indicated below:

1. (Canceled)
2. (Canceled)
3. (Canceled)
4. (Previously presented): An apparatus for producing DLC film-coated plastic containers having a bottom portion, a body portion which is located above said bottom portion, and a shoulder portion which is located above said body portion, comprising
  - an outer electrode unit disposed outside a plastic container,
  - an inner electrode disposed inside said plastic container,
  - a vacuum unit for reducing the inner pressure of the plastic container,
  - a gas feeding unit for feeding a raw material gas of a carbon source into said plastic container which has been placed under a vacuum by said vacuum unit,
  - and a power source unit for applying a voltage between the outer electrode unit and the inner electrode while a carbon source gas is fed into the container, thereby to generate plasma to form a DLC film on an inner surface of the plastic container;
  - wherein the outer electrode unit comprises a first outer electrode disposed along the bottom portion of the plastic container, a second outer electrode disposed along the body portion of the plastic container, and a third outer electrode disposed along the shoulder portion of the

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plastic container, resistive element or capacitive elements are interposed between each of the outer electrodes, to prevent the flow of direct electric current and seal the outer electrodes, and an output terminal of a high frequency oscillator is connected to only the first outer electrode via a matching transformer.

5. (Previously presented): An apparatus for producing DLC film-coated plastic containers having, a bottom portion, a body portion which is located above said bottom portion, and a shoulder portion which is located above said body portion comprising

an outer electrode unit disposed outside a plastic container,

an inner electrode disposed inside the plastic container,

a vacuum unit for reducing the inner pressure of the plastic container,

a gas feeding unit for feeding a raw material gas of a carbon source into the plastic container which has been placed under a vacuum by said vacuum unit, and

a power source unit for applying a voltage between the outer electrode unit and the inner electrode while a carbon source gas is fed into the container, thereby to generate plasma to form a DLC film on an inner surface of the plastic container,

wherein the outer electrode unit comprises a first outer electrode disposed along the bottom portion of the plastic container, a second outer electrode disposed above the first outer electrode and outside of the plastic container, and at least two other outer electrodes disposed above the second outer electrode and outside of the plastic container,

resistive or capacitive elements are interposed between each of the outer electrodes, to prevent the flow of direct electric current and seal the outer electrodes,

and an output terminal of a high frequency oscillator is connected to only the first outer electrode via a matching transformer.

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6. (Canceled)

7. (Canceled)

8. (Previously presented): A method for producing DLC film-coated plastic containers having a bottom portion, a body portion which is located above said bottom portion, and a shoulder portion which is located above said body portion, comprising the steps of:

disposing a first outer electrode, having an upper edge, outside a plastic container and at the bottom of the plastic container where it extends upwardly along sides of said plastic container in such a manner that said upper edge of the first outer electrode is positioned between the top and the bottom of the plastic container; disposing a second outer electrode outside the plastic container and extending upwardly along the body of said plastic container; interposing a resistive or capacitive element, which also serves as a sealing material, between the first outer electrode and the second outer electrode to prevent the flow of direct electric current;

disposing an inner electrode inside the plastic container and then creating a vacuum inside the plastic container, then feeding a raw material gas of a carbon source into the plastic container, and applying a voltage between the first and second outer electrodes and the inner electrode thereby to generate plasma to form a DLC film on the inner surface of the plastic container by providing a high-frequency electric power to only the first outer electrode,

wherein lower power is applied to the second outer electrode than to the first outer electrode by capacitive coupling.

9. (Currently amended): A method for producing DLC film-coated plastic containers having a bottom portion, a body portion which is located above said bottom portion, and a shoulder portion which is located above said body portion, comprising the steps of; disposing a first outer electrode outside a plastic container and along the bottom portion of the plastic container,

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disposing a second outer electrode outside the plastic container and along the body portion of the plastic container,

disposing a third outer electrode outside the plastic container and along the shoulder portion of the plastic container,

interposing resistive or capacitive elements, which also serves as a sealing material, between each of the outer electrodes to prevent the flow of direct electric current, disposing an inner electrode inside the plastic container, creating a vacuum in the plastic container, then feeding a raw material gas of a carbon source into the plastic container, and applying a voltage between the first, second and third outer electrodes and the inner electrode thereby to generate plasma to form a DLC film on the inner surface of the plastic container by providing a high-frequency electric power to only the first outer electrode.

10. (Currently amended): A method for producing DLC film-coated plastic containers, having a bottom portion, a body portion which is located above said bottom portion, and a shoulder portion which is located above said body portion, comprising the steps of: disposing a first outer electrode outside a plastic container and along the bottom portion of the plastic container, disposing a second outer electrode outside the plastic container and above the first outer electrode, disposing at least two additional outer electrodes outside the plastic container and above the second outer electrode, interposing resistive or capacitive elements, which also serves as a sealing material, between each of the outer electrodes to prevent the flow of direct electric current, disposing an inner electrode inside the plastic container, creating a vacuum in the plastic container, then feeding a raw material gas of a carbon source into the plastic container, and applying a voltage between the first and second outer electrodes combined with at least two other outer electrodes above the second outer electrode, and the inner electrode thereby to generate plasma to form a DLC film on the inner surface of the plastic container by providing a high frequency electric power to only the first outer electrode.

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11. (Previously presented): The method for producing DLC film-coated plastic containers as claimed in claim 9 or 10, wherein lower power is applied to the outer electrodes other than the first outer electrode by capacitive coupling.
12. (Canceled)
13. (Canceled)
14. (Canceled)
15. (Canceled)
16. (Canceled)
17. (Canceled)
18. (Canceled)
19. (Canceled)
20. (Previously presented): The apparatus for producing DLC film-coated plastic containers as claimed in claims 4 or 5, wherein the high-frequency electric power is imparted to the second outer electrode by capacitive coupling.
21. (Previously presented): The apparatus for producing DLC film-coated plastic containers as claimed in claims 4 or 5, wherein the high-frequency electric power is imparted to the outer electrodes other than the first outer electrode by capacitive coupling.
22. (Previously presented) The apparatus for producing DLC film-coated plastic containers as claimed in claims 4 or 5 wherein resistive or capacitive elements are formed to have a thickness through which the high-frequency electric power is able to be imparted to the outer electrode other than the first outer electrodes by capacitive coupling.

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23. (Previously presented): The method for producing DLC film-coated plastic containers as claimed in claim 9 or 10, wherein the high-frequency electric power required for each portion of the container other than the bottom portion is imparted by capacitive coupling.

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Canceled)

28. (Canceled)

29. (Canceled)

30. (Canceled)

31. (Canceled)

32. (Canceled)

33. (Canceled)